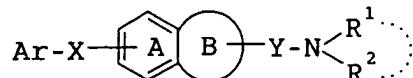


## CLAIMS

1. A compound of the formula:



wherein Ar represents an aromatic ring assembly group  
 5 which may be substituted or a fused aromatic group  
 which may be substituted;  
 X represents (i) a bond, (ii) -S-, -SO- or -SO<sub>2</sub>-, (iii)  
 a C<sub>1-6</sub> alkylene, C<sub>2-6</sub> alkenylene or C<sub>2-6</sub> alkynylene  
 group, each of which may be substituted by 1 to 3  
 10 substituents selected from the group consisting of oxo  
 and C<sub>1-6</sub> alkyl, (iv) -CO-O- or (v) a group of the  
 formula: -(CH<sub>2</sub>)<sup>p</sup>-X<sup>1</sup>-, -(CH<sub>2</sub>)<sup>p</sup>-X<sup>1</sup>-(CH<sub>2</sub>)<sup>q</sup>-,  
 -(CH<sub>2</sub>)<sup>r</sup>-CO-X<sup>1</sup>-, -SO<sub>2</sub>-NR<sup>8</sup>- or -(CH<sub>2</sub>)<sup>r</sup>-SO<sub>2</sub>-NR<sup>8</sup>-  
 wherein X<sup>1</sup> represents O or NR<sup>8</sup>,  
 15 R<sup>8</sup> represents a hydrogen atom, a hydrocarbon group  
 which may be substituted or an acyl, p represents an  
 integer of 0 to 5, q represents an integer of 1 to 5,  
 p+q is an integer of 1 to 5, and r represents an  
 integer of 1 to 4;  
 20 Y represents a divalent C<sub>1-6</sub> aliphatic hydrocarbon  
 group which may contain an oxygen atom or a sulfur atom  
 and may be substituted;  
 R<sup>1</sup> and R<sup>2</sup> each represents a hydrogen atom or a lower  
 alkyl which may be substituted, or  
 25 R<sup>1</sup> and R<sup>2</sup> form, taken together with the adjacent  
 nitrogen atom, a nitrogen-containing heterocyclic ring  
 which may be substituted;  
 Ring A represents a benzene ring which may be further  
 substituted apart from the group of the formula: -X-Ar  
 30 wherein each symbol is as defined above; and  
 Ring B represents a 4- to 8-membered ring which may be

further substituted apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above;

provided that, when the fused ring to be formed by Ring A and Ring B is an indole ring, the group of the formula: -X-Ar wherein each symbol is as defined above is substituted on 4-, 6- or 7-position of the indole ring,

or a salt thereof.

10 2. A compound of claim 1, wherein

Ar is (i) an aromatic ring assembly group which is composed of two or three rings selected from the class consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub> quinone and a 5- to 14-membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, which rings are directly bonded to each other via a single bond, and which assembly group may be substituted by 1 to 5

15 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano,

optionally halogenated C<sub>1-6</sub> alkyl, optionally

halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio,

25 hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered

30 heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-

carboxamido, C<sub>6</sub>-10 aryl-carboxamido, C<sub>1</sub>-6 alkoxy-  
carboxamido, C<sub>1</sub>-6 alkylsulfonylamino, C<sub>1</sub>-6 alkyl-  
carbonyloxy, C<sub>6</sub>-10 aryl-carbonyloxy, C<sub>1</sub>-6 alkoxy-  
carbonyloxy, mono-C<sub>1</sub>-6 alkyl-carbamoyloxy, di-C<sub>1</sub>-6  
5 alkyl-carbamoyloxy, C<sub>6</sub>-10 aryl-carbamoyloxy,  
nicotinoyloxy and C<sub>6</sub>-10 aryloxy, or  
(ii) a fused bi- or tri-cyclic C<sub>10</sub>-14 aryl or 9- to 14-  
membered aromatic heterocyclic group containing 1 to 4  
hetero atoms selected from the group consisting of  
10 nitrogen, oxygen and sulfur atoms in addition to carbon  
atoms, which group may be substituted by 1 to 5  
substituents selected from the group consisting of  
halogen atoms, C<sub>1</sub>-3 alkylenedioxy, nitro, cyano,  
optionally halogenated C<sub>1</sub>-6 alkyl, optionally  
15 halogenated C<sub>3</sub>-6 cycloalkyl, optionally halogenated C<sub>1</sub>-  
6 alkoxy, optionally halogenated C<sub>1</sub>-6 alkylthio,  
hydroxy, amino, mono-C<sub>1</sub>-6 alkylamino, di-C<sub>1</sub>-6  
alkylamino, 5- to 7-membered saturated cyclic amino,  
formyl, carboxy, carbamoyl, C<sub>1</sub>-6 alkyl-carbonyl, C<sub>1</sub>-6  
20 alkoxy-carbonyl, C<sub>6</sub>-10 aryl-carbonyl, C<sub>6</sub>-10 aryloxy-  
carbonyl, C<sub>7</sub>-16 aralkyloxy-carbonyl, 5- or 6-membered  
heterocycle carbonyl, mono-C<sub>1</sub>-6 alkyl-carbamoyl, di-C<sub>1</sub>-  
6 alkyl-carbamoyl, C<sub>6</sub>-10 aryl-carbamoyl, 5- or 6-  
membered heterocycle carbamoyl, C<sub>1</sub>-6 alkylsulfonyl, C<sub>6</sub>-  
25 10 arylsulfonyl, formylamino, C<sub>1</sub>-6 alkyl-carboxamido,  
C<sub>6</sub>-10 aryl-carboxamido, C<sub>1</sub>-6 alkoxy-carboxamido, C<sub>1</sub>-6  
alkylsulfonylamino, C<sub>1</sub>-6 alkyl-carbonyloxy, C<sub>6</sub>-10 aryl-  
carbonyloxy, C<sub>1</sub>-6 alkoxy-carbonyloxy, mono-C<sub>1</sub>-6 alkyl-  
carbamoyloxy, di-C<sub>1</sub>-6 alkyl-carbamoyloxy, C<sub>6</sub>-10 aryl-  
30 carbamoyloxy, nicotinoyloxy and C<sub>6</sub>-10 aryloxy;

R<sup>8</sup> is (a) a hydrogen atom,  
(b) a C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-6</sub> cycloalkyl being optionally condensed with one benzene ring, C<sub>6-14</sub> aryl or C<sub>7-19</sub> aralkyl group which may be  
5 substituted by 1 to 5 substituents selected from the group consisting of (1) halogen atoms, (2) C<sub>1-3</sub> alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C<sub>1-6</sub> alkyl, (6) optionally halogenated C<sub>3-6</sub> cycloalkyl, (7) optionally halogenated C<sub>1-6</sub> alkoxy, (8)  
10 optionally halogenated C<sub>1-6</sub> alkylthio, (9) hydroxy, (10) amino, (11) mono-C<sub>1-6</sub> alkylamino, (12) di-C<sub>1-6</sub> alkylamino, (13) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-  
15 carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl, (14)  
formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-  
20 carboxamido, C<sub>1-6</sub> alkoxy-carboxamido or C<sub>1-6</sub> alkylsulfonylamino, (15) C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-  
25 membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5- or 6-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be  
30 substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy,

nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl,  
optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally  
halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub>  
alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-</sub>  
5 6 alkylamino, 5- to 7-membered saturated cyclic amino,  
formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub>  
alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered  
heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-</sub>  
10 6 alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-  
membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-</sub>  
10 arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub>  
alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-  
15 carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-  
carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-  
carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, (19) an  
aromatic ring assembly group which is composed of two  
or three rings selected from the class consisting of a  
20 C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub> quinone and a 5- to  
14-membered aromatic heterocyclic ring containing 1 to  
4 hetero atoms selected from the group consisting of  
nitrogen, sulfur and oxygen atoms in addition to carbon  
atoms, are directly bonded to each other via a single  
bond, and which group may be substituted by 1 to 5  
25 substituents selected from the group consisting of  
halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano,  
optionally halogenated C<sub>1-6</sub> alkyl, optionally  
halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-</sub>  
30 6 alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio,  
hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub>

alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, and (20) a fused bi- or tri-cyclic C<sub>10-14</sub> aryl or 9- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-

membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, or  
5 (c) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl;

10 Y is a C<sub>1-6</sub> alkylene, a C<sub>2-6</sub> alkenylene, a C<sub>2-6</sub> alkynylene or a group of the formula:  
-(CH<sub>2</sub>)<sub>m</sub>-Y<sup>1</sup>-(CH<sub>2</sub>)<sub>n</sub>- wherein -Y<sup>1</sup>- is -O-, -S-, -SO- or  
-SO<sub>2</sub>-,  
m is an integer of 0 to 4,  
20 n is an integer of 1 to 5, and  
m+n is an integer of 1 to 5;  
R<sup>1</sup> and R<sup>2</sup> each is a hydrogen atom or a C<sub>1-6</sub> alkyl which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms,  
25 C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy.

carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl,  
C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub>  
aralkyloxy-carbonyl, 5- or 6-membered heterocycle  
carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-  
5 carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered  
heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub>  
arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-</sub>  
10 aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub>  
alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-  
10 carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-  
carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-  
carbamoyloxy, nicotinoyloxy, C<sub>6-10</sub> aryloxy and C<sub>6-10</sub>  
aryl or  
15 R<sup>1</sup> and R<sup>2</sup> form, taken together with the adjacent  
nitrogen atom, a 3- to 8-membered nitrogen-containing  
heterocyclic ring having one nitrogen atom and  
optionally having 1 to 3 hetero atoms selected from the  
group consisting of nitrogen, oxygen and sulfur atoms  
in addition to carbon atoms, which ring may be  
20 substituted by 1 to 5 substituents selected from the  
group consisting of (1) halogen atoms, (2) C<sub>1-3</sub>  
alkylenedioxy, (3) nitro, (4) cyano, (5) optionally  
halogenated C<sub>1-6</sub> alkyl, (6) optionally halogenated C<sub>3-6</sub>  
cycloalkyl, (7) optionally halogenated C<sub>1-6</sub> alkoxy, (8)  
25 optionally halogenated C<sub>1-6</sub> alkylthio, (9) hydroxy,  
(10) amino, (11) mono-C<sub>1-6</sub> alkylamino, (12) di-C<sub>1-6</sub>  
alkylamino, (13) formyl, carboxy, carbamoyl, C<sub>1-6</sub>  
alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-  
carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-  
30 carbonyl, 5- or 6-membered heterocycle carbonyl, mono-  
C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub>

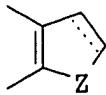
aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl,  
C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl, (14)  
formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-  
carboxamido, C<sub>1-6</sub> alkoxy-carboxamido or C<sub>1-6</sub>  
5 alkylsulfonylamino, (15) C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub>  
aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub>  
alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub>  
aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-  
membered saturated cyclic amino, (17) sulfo, (18) a  
10 phenyl or 5- or 6-membered aromatic heterocyclic group  
containing 1 to 4 hetero atoms selected from the group  
consisting of nitrogen, oxygen and sulfur atoms in  
addition to carbon atoms, each of which may be  
substituted by 1 to 5 substituents selected from the  
15 group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy,  
nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl,  
optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally  
halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub>  
alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-</sub>  
20 6 alkylamino, 5- to 7-membered saturated cyclic amino,  
formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub>  
alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered  
heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-</sub>  
25 6 alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-  
membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-</sub>  
10 arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub>  
alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-  
30 carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-  
carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub>

aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy,  
(19) an aromatic ring assembly group which is composed  
of two or three rings selected from the class  
consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub>  
5 quinone and a 5- to 14-membered aromatic heterocyclic  
ring containing 1 to 4 hetero atoms selected from the  
group consisting of nitrogen, sulfur and oxygen atoms  
in addition to carbon atoms, are directly bonded to  
each other via a single bond, and which group may be  
10 substituted by 1 to 5 substituents selected from the  
group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy,  
nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl,  
optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally  
halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub>  
15 alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-</sub>  
6 alkylamino, 5- to 7-membered saturated cyclic amino,  
formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub>  
alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered  
20 heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-</sub>  
6 alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-  
membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-</sub>  
10 arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub>  
25 alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-  
carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-  
carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-  
carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, (20) a  
fused bi- or tri-cyclic C<sub>10-14</sub> aryl or 9- to 14-  
30 membered aromatic heterocyclic group containing 1 to 4  
hetero atoms selected from the group consisting of

nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano,  
5 optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino,  
10 formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, (21) an oxo and (22) C<sub>7-19</sub> aralkyl;

Ring A is a benzene ring which may be further substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>1-6</sub> alkoxy, hydroxy and amino, apart from the group of the formula: -X-Ar wherein each symbol is as defined above; and

30 Ring B is a 4- to 8-membered ring of the formula:



wherein --- is a single bond or a double bond, and Z is (i) a bond, (ii) a C<sub>1-4</sub> alkylene, (iii) a C<sub>2-4</sub> alkenylene, (iv) -O-CH<sub>2</sub>- , (v) -O-CH<sub>2</sub>-CH<sub>2</sub>- or (vi) a group of the formula: -NR<sup>8a</sup>-CH<sub>2</sub>- or -NR<sup>8a</sup>-CH<sub>2</sub>-CH<sub>2</sub>- wherein R<sup>8a</sup> is (a) a hydrogen atom, (b) a C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-6</sub> cycloalkyl being optionally condensed with one benzene ring, C<sub>6-14</sub> aryl or C<sub>7-19</sub> aralkyl group which may be substituted by 1 to 5 substituents selected from the group consisting of (1) halogen atoms, (2) C<sub>1-3</sub> alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C<sub>1-6</sub> alkyl, (6) optionally halogenated C<sub>3-6</sub> cycloalkyl, (7) optionally halogenated C<sub>1-6</sub> alkoxy, (8) optionally halogenated C<sub>1-6</sub> alkylthio, (9) hydroxy, (10) amino, (11) mono-C<sub>1-6</sub> alkylamino, (12) di-C<sub>1-6</sub> alkylamino, (13) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl, (14) formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido or C<sub>1-6</sub> alkylsulfonylamino, (15) C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-

membered saturated cyclic amino, (17) sulfo, (18) a phenyl or 5- or 6-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in  
5 addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally  
10 halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
15 carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
20 C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, (19) an  
25 aromatic ring assembly group which is composed of two or three rings selected from the class consisting of a C<sub>6-14</sub> aromatic hydrocarbon, a C<sub>6-14</sub> quinone and a 5- to 14-membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of  
30 nitrogen, sulfur and oxygen atoms in addition to carbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5

substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-</sub>

5 6 alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
10 carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
15 C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, and (20)  
20 a fused bi- or tri-cyclic C<sub>10-14</sub> aryl or 9- to 14-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5  
25 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-</sub>

30 6 alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7- membered saturated cyclic

amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl,  
C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub>  
aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-  
membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-  
5 carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-  
carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub>  
alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub>  
alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-  
carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-  
10 carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-  
carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub>  
alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy,  
nicotinoyloxy and C<sub>6-10</sub> aryloxy, or  
(c) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl,  
15 C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub>  
aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-  
membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-  
carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-  
carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub>  
20 alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl, which ring may be  
further substituted by 1 to 3 substituents selected  
from the group consisting of oxo, C<sub>1-6</sub> alkyl and  
hydroxy, apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup>  
wherein each symbol is as defined above.

25 3. A compound of claim 1, wherein Ar is an aromatic  
ring assembly group which may be substituted.

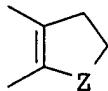
4. A compound of claim 3, wherein the aromatic rings  
of the aromatic ring assembly group are two or three  
aromatic rings selected from the group consisting of  
30 benzene, thiophene, pyridine, pyrimidine, 1,2,4-  
oxadiazole, 1,3,4-oxadiazole, naphthalene and

benzofuran.

5. A compound of claim 3, wherein the aromatic ring assembly group is 2-, 3- or 4-biphenylyl.
6. A compound of claim 1, wherein Ar is a 4-  
5 biphenylyl which may be substituted by 1 to 3  
substituents selected from the group consisting of  
halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano,  
optionally halogenated C<sub>1-6</sub> alkyl, optionally  
halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-</sub>  
10 6 alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio,  
hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub>  
alkylamino, 5- to 7-membered saturated cyclic amino,  
formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub>  
alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-  
15 carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered  
heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-</sub>  
6 alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-  
membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-</sub>  
10 arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido,  
20 C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub>  
alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-  
carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-  
carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-  
carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy.
- 25 7. A compound of claim 1, wherein X is a divalent C<sub>1-</sub>  
6 aliphatic hydrocarbon group which may contain an  
oxygen atom.
8. A compound of claim 1, wherein X is a C<sub>1-6</sub>  
alkylene.
- 30 9. A compound of claim 1, wherein X is a group of the  
formula: -(CH<sub>2</sub>)<sub>p</sub>-X<sup>1</sup>- wherein each symbol has the same

meaning as in claim 1.

10. A compound of claim 9, wherein p is 1.
11. A compound of claim 10, wherein X<sup>1</sup> is O.
12. A compound of claim 10, wherein X<sup>1</sup> is NR<sup>8b</sup> wherein  
5 R<sup>8b</sup> is hydrogen or C<sub>1-6</sub> alkyl-carbonyl.
13. A compound of claim 1, wherein X<sup>1</sup> is a group of  
the formula: -SO<sub>2</sub>-NR<sup>8-</sup> wherein each symbol has the same  
meaning as in claim 1.
14. A compound of claim 13, wherein R<sup>8</sup> is hydrogen.
- 10 15. A compound of claim 1, wherein Y is a divalent C<sub>1-6</sub> aliphatic hydrocarbon group.
16. A compound of claim 1, wherein Y is C<sub>1-6</sub> alkylene.
17. A compound of claim 1, wherein R<sup>1</sup> and R<sup>2</sup> each is C<sub>1-6</sub> alkyl.
- 15 18. A compound of claim 1, wherein Ring A is a benzene ring substituted by the group of the formula: -X-Ar wherein each symbol has the same meaning as in claim 1.
19. A compound of claim 1, wherein Ring B is a 4- to 8-membered ring of the formula:



20

wherein Z is (i) a bond, (ii) a C<sub>1-4</sub> alkylene, (iii) a C<sub>2-4</sub> alkenylene, (iv) -O-CH<sub>2</sub>-, (v) -O-CH<sub>2</sub>-CH<sub>2</sub>- or (vi) a group of the formula: -NR<sup>8a</sup>-CH<sub>2</sub>- or -NR<sup>8a</sup>-CH<sub>2</sub>-CH<sub>2</sub>- wherein R<sup>8a</sup> is (a) a hydrogen atom,

25 (b) a C<sub>1-6</sub> alkyl, C<sub>2-6</sub> alkenyl, C<sub>2-6</sub> alkynyl, C<sub>3-6</sub> cycloalkyl being optionally condensed with one benzene ring, C<sub>6-14</sub> aryl or C<sub>7-19</sub> aralkyl group which may be substituted by 1 to 5 substituents selected from the group consisting of (1) halogen atoms, (2) C<sub>1-3</sub>

alkylenedioxy, (3) nitro, (4) cyano, (5) optionally halogenated C<sub>1-6</sub> alkyl, (6) optionally halogenated C<sub>3-6</sub> cycloalkyl, (7) optionally halogenated C<sub>1-6</sub> alkoxy, (8) optionally halogenated C<sub>1-6</sub> alkylthio, (9) hydroxy,  
5 (10) amino, (11) mono-C<sub>1-6</sub> alkylamino, (12) di-C<sub>1-6</sub> alkylamino, (13) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-  
10 C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl, (14)  
C<sub>1-6</sub> alkylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido or C<sub>1-6</sub>  
15 alkylsulfonylamino, (15) C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy or nicotinoyloxy, (16) 5- to 7-membered saturated cyclic amino, (17) sulfo, (18) a  
20 phenyl or 5- or 6-membered aromatic heterocyclic group containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, each of which may be substituted by 1 to 5 substituents selected from the  
25 group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub>

alkoxy-carbonyl, C<sub>6</sub>-10 aryl-carbonyl, C<sub>6</sub>-10 aryloxy-carbonyl, C<sub>7</sub>-16 aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1</sub>-6 alkyl-carbamoyl, di-C<sub>1</sub>-6 alkyl-carbamoyl, C<sub>6</sub>-10 aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1</sub>-6 alkylsulfonyl, C<sub>6</sub>-10 arylsulfonyl, formylamino, C<sub>1</sub>-6 alkyl-carboxamido, C<sub>6</sub>-10 aryl-carboxamido, C<sub>1</sub>-6 alkoxy-carboxamido, C<sub>1</sub>-6 alkylsulfonlamino, C<sub>1</sub>-6 alkyl-carbonyloxy, C<sub>6</sub>-10 aryl-carbonyloxy, C<sub>1</sub>-6 alkoxy-carbonyloxy, mono-C<sub>1</sub>-6 alkyl-carbamoyloxy, di-C<sub>1</sub>-6 alkyl-carbamoyloxy, C<sub>6</sub>-10 aryl-carbamoyloxy, nicotinoyloxy and C<sub>6</sub>-10 aryloxy, (19) an aromatic ring assembly group which is composed of two or three rings selected from the class consisting of a C<sub>6</sub>-14 aromatic hydrocarbon, a C<sub>6</sub>-14 quinone and a 5- to 14-membered aromatic heterocyclic ring containing 1 to 4 hetero atoms selected from the group consisting of nitrogen, sulfur and oxygen atoms in addition to carbon atoms, are directly bonded to each other via a single bond, and which group may be substituted by 1 to 5 substituents selected from the group consisting of halogen atoms, C<sub>1</sub>-3 alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1</sub>-6 alkyl, optionally halogenated C<sub>3</sub>-6 cycloalkyl, optionally halogenated C<sub>1</sub>-6 alkoxy, optionally halogenated C<sub>1</sub>-6 alkylthio, hydroxy, amino, mono-C<sub>1</sub>-6 alkylamino, di-C<sub>1</sub>-6 alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1</sub>-6 alkyl-carbonyl, C<sub>1</sub>-6 alkoxy-carbonyl, C<sub>6</sub>-10 aryl-carbonyl, C<sub>6</sub>-10 aryloxy-carbonyl, C<sub>7</sub>-16 aralkyloxy-carbonyl, 5- or 6-membered heterocycle carbonyl, mono-C<sub>1</sub>-6 alkyl-carbamoyl, di-C<sub>1</sub>-6 alkyl-carbamoyl, C<sub>6</sub>-10 aryl-carbamoyl, 5- or 6-

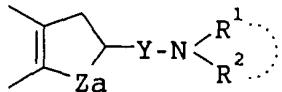
membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, and (20) 5 a fused bi- or tri-cyclic C<sub>10-14</sub> aryl or 9- to 14-membered aromatic heterocyclic group containing 1 to 4 10 hetero atoms selected from the group consisting of nitrogen, oxygen and sulfur atoms in addition to carbon atoms, which group may be substituted by 1 to 5 15 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally 20 halogenated C<sub>3-6</sub> cycloalkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> 25 alkylamino, 5- to 7-membered saturated cyclic amino, formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered 30 heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl, C<sub>6-10</sub> arylsulfonyl, formylamino, C<sub>1-6</sub> alkyl-carboxamido, C<sub>6-10</sub> aryl-carboxamido, C<sub>1-6</sub> alkoxy-carboxamido, C<sub>1-6</sub> alkylsulfonylamino, C<sub>1-6</sub> alkyl-carbonyloxy, C<sub>6-10</sub> aryl-carbonyloxy, C<sub>1-6</sub> alkoxy-carbonyloxy, mono-C<sub>1-6</sub> alkyl-carbamoyloxy, di-C<sub>1-6</sub> alkyl-carbamoyloxy, C<sub>6-10</sub> aryl-

carbamoyloxy, nicotinoyloxy and C<sub>6-10</sub> aryloxy, or  
 (c) formyl, carboxy, carbamoyl, C<sub>1-6</sub> alkyl-carbonyl,  
 C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub>  
 aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-  
 5 membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-  
 carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-  
 carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub>  
 alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl,  
 which ring may be further substituted by 1 to 3  
 10 substituents selected from the group consisting of oxo,  
 C<sub>1-6</sub> alkyl and hydroxy, apart from the group of the  
 formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol has the same  
 meaning as in claim 1.

20. A compound of claim 19, wherein R<sup>8a</sup> is hydrogen,  
 15 optionally halogenated C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl-carbonyl,  
 C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub>  
 aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-  
 membered heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-  
 carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-  
 carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub>  
 alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl.

21. A compound of claim 1, wherein Ring B is a 6-  
 membered carbocyclic or heterocyclic ring substituted  
 by a group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol  
 25 has the same meaning as in claim 1.

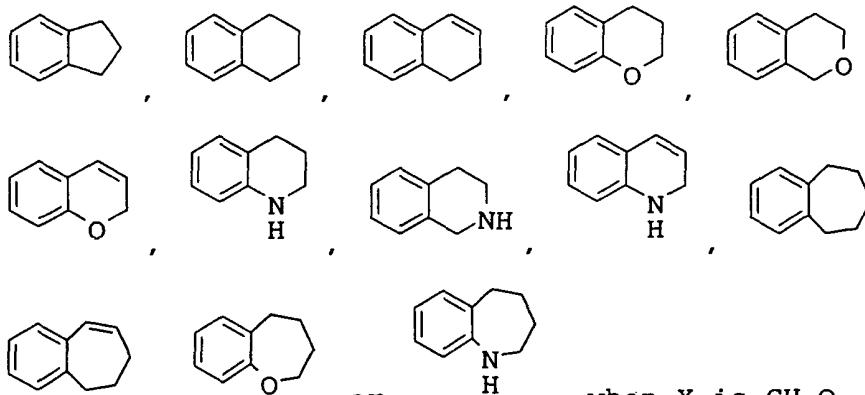
22. A compound of claim 1, wherein Ring B is a ring of  
 the formula:



wherein Za is C<sub>1-3</sub> alkylene or a group of the formula:

-NR<sup>8C</sup>-CH<sub>2</sub>- wherein R<sup>8C</sup> is hydrogen, optionally halogenated C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkyl-carbonyl, C<sub>1-6</sub> alkoxy-carbonyl, C<sub>6-10</sub> aryl-carbonyl, C<sub>6-10</sub> aryloxy-carbonyl, C<sub>7-16</sub> aralkyloxy-carbonyl, 5- or 6-membered 5  
heterocycle carbonyl, mono-C<sub>1-6</sub> alkyl-carbamoyl, di-C<sub>1-6</sub> alkyl-carbamoyl, C<sub>6-10</sub> aryl-carbamoyl, 5- or 6-membered heterocycle carbamoyl, C<sub>1-6</sub> alkylsulfonyl or C<sub>6-10</sub> arylsulfonyl.

23. A compound of claim 22, wherein Za is ethylene.  
10 24. A compound of claim 1, wherein the fused ring to be formed by Ring A and Ring B is a ring of the formula:



15

25. A compound of claim 1, wherein Ar is 2-, 3- or 4-biphenylyl which may be substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl,  
20 optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, formyl and C<sub>1-6</sub> alkylcarboxamido;

25 X is C<sub>1-3</sub> alkylene which may contain an oxygen

atom;

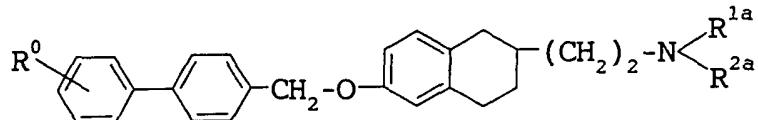
Y is C<sub>1-6</sub> alkylene;

R<sup>1</sup> and R<sup>2</sup> each is C<sub>1-6</sub> alkyl;

5 Ring A is a benzene ring substituted by the group of the formula: -X-Ar wherein each symbol has the same meaning as in claim 1; and

Ring B is a 6-membered carbocyclic or heterocyclic ring substituted by the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol has the same meaning as in claim 1.

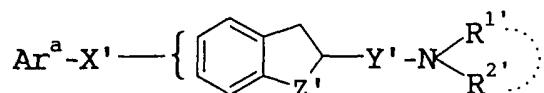
10 26. A compound of claim 1, which is a compound of the formula:



wherein R<sup>0</sup> is 1 to 3 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl, optionally halogenated C<sub>1-6</sub> alkoxy, optionally halogenated C<sub>1-6</sub> alkylthio, hydroxy, amino, mono-C<sub>1-6</sub> alkylamino, di-C<sub>1-6</sub> alkylamino, formyl and C<sub>1-6</sub> alkylcarboxamido; and

15 R<sup>1a</sup> and R<sup>2a</sup> each is C<sub>1-6</sub> alkyl, or a salt thereof.

20 27. A compound of claim 1, which is a compound of the formula:



wherein Ar<sup>a</sup> is (i) 2, 3- or 4-biphenylyl which may be substituted by 1 to 3 substituents selected from the group consisting of halogen atoms, C<sub>1-3</sub> alkylenedioxy, nitro, cyano, optionally halogenated C<sub>1-6</sub> alkyl,

optionally halogenated C<sub>1-6</sub> alkoxy, optionally  
 halogenated C<sub>1-6</sub> alkylthio, amino, formyl and C<sub>1-6</sub>  
 alkyl-carboxamido, (ii) 4-(2-thienyl)phenyl or 4-(3-  
 thienyl)phenyl, (iii) 4-(3-pyridyl)phenyl, (iv) 6-  
 phenyl-3-pyridyl which may be substituted by a C<sub>1-6</sub>  
 5 alkoxy, (v) 5-phenyl-1,3,4-oxadiazol-2-yl, (vi) 4-(2-  
 naphthyl)phenyl, (vii) 4-(2-benzofuranyl)phenyl, (viii)  
 1- or 2-naphthyl, (ix) 2-quinolyl, (x) 2-benzothiazolyl  
 or (xi) 2-benzofuranyl;

10 X' is -CH<sub>2</sub>-O-, -SO<sub>2</sub>-NH- or a group of the formula:

-CH<sub>2</sub>-NR<sup>8'</sup>- wherein R<sup>8'</sup> is hydrogen or C<sub>1-3</sub> alkyl-  
 carbonyl;

Y' is C<sub>1-6</sub> alkylene;

Z' is -CH<sub>2</sub>-CH<sub>2</sub>- or a group of the formula:

15 -NR<sup>8''</sup>-CH<sub>2</sub>- wherein R<sup>8''</sup> is hydrogen, C<sub>1-3</sub> alkyl, C<sub>1-3</sub>  
 alkyl-carbonyl or C<sub>1-3</sub> alkylsulfonyl; and

R<sup>1'</sup> and R<sup>2'</sup> each is C<sub>1-6</sub> alkyl which may be  
 substituted by 1 to 5 substituents selected from the  
 group consisting of di-C<sub>1-3</sub> alkylamino, C<sub>1-3</sub> alkoxy-  
 20 carbonyl and phenyl, or

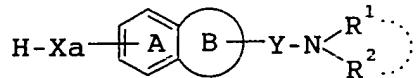
R<sup>1'</sup> and R<sup>2'</sup> form, taken together with the adjacent  
 nitrogen atom, a pyrrolidin-1-yl, piperidino or  
 piperazin-1-yl which may be substituted by 1 to 3  
 substituents selected from the group consisting of  
 25 hydroxy, C<sub>1-3</sub> alkoxy-carbonyl, piperidino, phenyl and  
 benzyl, or a salt thereof.

28. A compound of claim 1 which is 6-(4-  
 biphenylyl)methoxy-2-[2-(N,N-  
 dimethylamino)ethyl]tetralin,  
 30 6-(4-biphenylyl)methoxy-2-(N,N-  
 dimethylamino)methyltetralin,  
 2-(N,N-dimethylamino)methyl-6-(4'-methoxybiphenyl-4-

yl)methoxytetralin,  
 (+)-6-(4-biphenylyl)methoxy-2-[2-(N,N-dimethylamino)ethyl]tetralin,  
 (+)-6-(4-biphenylyl)methoxy-2-[2-(N,N-diethylamino)ethyl]tetralin,  
 5 (+)-2-[2-(N,N-dimethylamino)ethyl]-6-(4'-methylbiphenyl-4-yl)methoxytetralin,  
 (+)-2-[2-(N,N-dimethylamino)ethyl]-6-(4'-methoxybiphenyl-4-yl)methoxytetralin,  
 10 (+)-6-(2',4'-dimethoxybiphenyl-4-yl)methoxy-2-[2-(N,N-dimethylamino)ethyl]tetralin,  
 (+)-6-[4-(1,3-benzodioxol-5-yl)phenyl]methoxy-2-[2-(N,N-dimethylamino)ethyl]tetralin, or  
 (+)-6-(3',4'-dimethoxybiphenyl-4-yl)methoxy-2-[2-(N,N-dimethylamino)ethyl]tetralin, or a salt thereof.

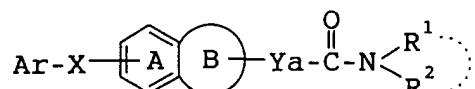
29. A process for producing of a compound of claim 1, which comprises;

i) subjecting a compound of the formula:



20 wherein Xa represents an oxygen atom, a sulfur atom which may be oxidized or a group of the formula: NR<sup>8</sup> wherein R<sup>8</sup> represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl; and the other symbols have the same meanings as in claim 1, or  
 25 a salt thereof, to alkylation or acylation and optionally followed by aryl-coupling of the resultant compound;

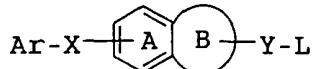
ii) subjecting a compound of the formula:



30 wherein Ya represents a group to be formed by removing a methylene from Y; and the other symbols have the same meanings as in claim 1, or a salt thereof, to

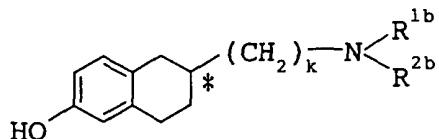
reduction; or

iii) subjecting a compound of the formula:



wherein L represents a leaving group; and the other  
5 symbols have the same meanings as in claim 1, to  
amination.

30. An optical isomer of the compound of the formula:



wherein R<sup>1b</sup> and R<sup>2b</sup> each represents methyl or ethyl, k  
10 represents 1 or 2, and \* indicates the position of the  
asymmetric carbon, or a salt thereof.

31. A pharmaceutical composition which comprises a  
compound of claim 1.

32. A pharmaceutical composition of claim 31 which is  
15 an inhibitor for production and/or secretion of  
amyloid- $\beta$  protein.

33. A pharmaceutical composition of claim 31 which is  
for preventing and/or treating neurodegenerative  
diseases caused by amyloid- $\beta$  protein.

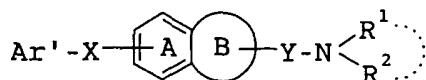
20 34. A pharmaceutical composition of claim 32, wherein  
the neurodegenerative disease caused by amyloid- $\beta$   
protein is Alzheimer's disease.

35. A method of inhibiting production and/or secretion  
of amyloid- $\beta$  protein in mammal, which comprises  
25 administering to said mammal an effective amount of a  
compound of claim 1 or a pharmaceutically acceptable  
salt thereof with a pharmaceutically acceptable  
excipient, carrier or diluent.

36. Use of a compound of claim 1 or a salt thereof for  
30 manufacturing a pharmaceutical composition for

inhibiting production and/or secretion of amyloid- $\beta$  protein.

37. An inhibitor for production and/or secretion of amyloid- $\beta$  protein, which comprises a compound of the  
5 formula:



wherein Ar' represents an aromatic group which may be substituted;

X represents (i) a bond, (ii) -S-, -SO- or -SO<sub>2</sub>-, (iii) 10 a C<sub>1-6</sub> alkylene, C<sub>2-6</sub> alkenylene or C<sub>2-6</sub> alkynylene group, each of which may be substituted by 1 to 3 substituents selected from the group consisting of oxo and C<sub>1-6</sub> alkyl, (iv) -CO-O- or (v) a group of the formula: -(CH<sub>2</sub>)<sub>p</sub>-X<sup>1</sup>-, -(CH<sub>2</sub>)<sub>p</sub>-X<sup>1</sup>-(CH<sub>2</sub>)<sub>q</sub>-,

15 -(CH<sub>2</sub>)<sub>r</sub>-CO-X<sup>1</sup>-, -SO<sub>2</sub>-NR<sup>8</sup>- or -(CH<sub>2</sub>)<sub>r</sub>-SO<sub>2</sub>-NR<sup>8</sup>- wherein X<sup>1</sup> represents O or NR<sup>8</sup>,

R<sup>8</sup> represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5, 20 p+q is an integer of 1 to 5, and r represents an integer of 1 to 4;

Y represents a divalent C<sub>1-6</sub> aliphatic hydrocarbon group which may contain an oxygen atom or a sulfur atom and may be substituted;

25 R<sup>1</sup> and R<sup>2</sup> each represents a hydrogen atom or a lower alkyl which may be substituted, or

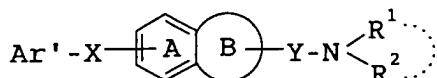
R<sup>1</sup> and R<sup>2</sup> form, taken together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic ring which may be substituted;

30 Ring A represents a benzene ring which may be further substituted apart from the group of the formula: -X-Ar

wherein each symbol is as defined above; and  
 Ring B represents a 4- to 8-membered ring which may be  
 further substituted apart from the group of the  
 formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined  
 above,

or a salt thereof.

38. A method of inhibiting production and/or secretion  
 of amyloid- $\beta$  protein in mammal, which comprises  
 administering to said mammal an effective amount of a  
 compound of the formula:



wherein Ar' represents an aromatic group which may be substituted;

X represents (i) a bond, (ii) -S-, -SO- or -SO<sub>2</sub>-, (iii)

a C<sub>1-6</sub> alkylene, C<sub>2-6</sub> alkenylene or C<sub>2-6</sub> alkynylene group, each of which may be substituted by 1 to 3 substituents selected from the group consisting of oxo and C<sub>1-6</sub> alkyl, (iv) -CO-O- or (v) a group of the

formula: -(CH<sub>2</sub>)<sub>p</sub>-X<sup>1</sup>- , -(CH<sub>2</sub>)<sub>p</sub>-X<sup>1</sup>-(CH<sub>2</sub>)<sub>q</sub>- ,

-(CH<sub>2</sub>)<sub>r</sub>-CO-X<sup>1</sup>- , -SO<sub>2</sub>-NR<sup>8</sup>- or -(CH<sub>2</sub>)<sub>r</sub>-SO<sub>2</sub>-NR<sup>8</sup>-

wherein X<sup>1</sup> represents O or NR<sup>8</sup>,

R<sup>8</sup> represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5,

p+q is an integer of 1 to 5, and r represents an integer of 1 to 4;

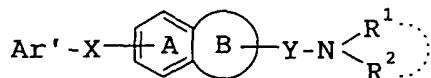
Y represents a divalent C<sub>1-6</sub> aliphatic hydrocarbon group which may contain an oxygen atom or a sulfur atom and may be substituted;

R<sup>1</sup> and R<sup>2</sup> each represents a hydrogen atom or a lower alkyl which may be substituted, or

$R^1$  and  $R^2$  form, taken together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic ring which may be substituted;

5 Ring A represents a benzene ring which may be further substituted apart from the group of the formula:  $-X-Ar$  wherein each symbol is as defined above; and  
 Ring B represents a 4- to 8-membered ring which may be further substituted apart from the group of the formula:  $-Y-NR^1R^2$  wherein each symbol is as defined  
 10 above, or a pharmaceutically acceptable salt thereof with a pharmaceutically acceptable excipient, carrier or diluent.

39. Use of a compound of the formula:



15 wherein  $Ar'$  represents an aromatic group which may be substituted;  
 $X$  represents (i) a bond, (ii)  $-S-$ ,  $-SO-$  or  $-SO_2-$ , (iii) a  $C_{1-6}$  alkylene,  $C_{2-6}$  alkenylene or  $C_{2-6}$  alkynylene group, each of which may be substituted by 1 to 3  
 20 substituents selected from the group consisting of oxo and  $C_{1-6}$  alkyl, (iv)  $-CO-O-$  or (v) a group of the formula:  $-(CH_2)p-X^1-$ ,  $-(CH_2)p-X^1-(CH_2)q-$ ,  
 $-(CH_2)r-CO-X^1-$ ,  $-SO_2-NR^8-$  or  $-(CH_2)r-SO_2-NR^8-$  wherein  $X^1$  represents O or  $NR^8$ ,  
 25  $R^8$  represents a hydrogen atom, a hydrocarbon group which may be substituted or an acyl, p represents an integer of 0 to 5, q represents an integer of 1 to 5,  $p+q$  is an integer of 1 to 5, and r represents an integer of 1 to 4;  
 30 Y represents a divalent  $C_{1-6}$  aliphatic hydrocarbon group which may contain an oxygen atom or a sulfur atom

and may be substituted;

R<sup>1</sup> and R<sup>2</sup> each represents a hydrogen atom or a lower alkyl which may be substituted, or

R<sup>1</sup> and R<sup>2</sup> form, taken together with the adjacent nitrogen atom, a nitrogen-containing heterocyclic ring which may be substituted;

5 Ring A represents a benzene ring which may be further substituted apart from the group of the formula: -X-Ar wherein each symbol is as defined above; and

10 Ring B represents a 4- to 8-membered ring which may be further substituted apart from the group of the formula: -Y-NR<sup>1</sup>R<sup>2</sup> wherein each symbol is as defined above, or a salt thereof for manufacturing a pharmaceutical composition for inhibiting production

15 and/or secretion of amyloid- $\beta$  protein.